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LOCATION OF DATA POINTS FOR TAZEWELL COUNTY, ILLINOIS

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This map shows the locations and types of point data used to map the geology of Tazewell County. More than 3000 water, exploration, engineering or monitoring wells were used to create the 3-D model of the subsurface lithology, to survey the bedrock topography and drift thickness, and to model the aquifer sensitivity of the county.

DATA TYPES:

ISGS Well Logs The Illinois State Geological Survey maintains a database of records from water, monitoring or exploration wells dug in the state. This information is augmented by numerous engineering borings drilled by government agencies or the private sector. Over 4000 such well logs exist currently for Tazewell County, and these were scrutinized for locational accuracy and data quality. For all wells that lacked a location at least as accurate as within a quarter of a quarter section (a square approximately 1300 feet on a side), the well log location descriptions, maps, digital elevation models, property ownership plat books, and other information sources were utilized to try to more accurately locate the well. If a well could not be more accurately located than within a quarter of a quarter-section, it was removed from the dataset. All wells were then further inspected by comparing their reported top elevation with the elevation reported for their location on the elevation grid model created for the study. All wells that differed in elevation from the grid elevation by 10 or more feet were re-checked for the accuracy of their elevation or location. When appropriate, a well's location was moved, or its elevation adjusted, to match the grid. Wells which could not be rectified with the digital elevation grid were removed from the dataset. Finally, all the remaining well records were compared to one another by creating a 3-D display of their reported lithology. Suspect or inconsistent data was inspected and removed if appropriate. This editing process left 3052 well locations which were used for the 3-D modeling process and to compile the other maps.

The following subsets of these ISGS well logs were used to create models and maps of the depth to bedrock and drift thickness:

Wells reaching bedrock Of the 3052 wells described above, approximately 500 reported reaching bedrock. These well records were checked for data quality and for data consistency between wells, reducing the number used for primary modeling of the bedrock surface to 427 wells.

Deep wells not to bedrock Approximately 450 wells whose total depth was within 20 feet of or penetrated the primary bedrock model surface, but did not record bedrock, were used to further define the bedrock topography.

ISGS Field Notes The ISGS maintains a library of field note books used by Survey geologists while performing fieldwork in the State. The descriptions from almost 100 years of scientific study of Illinois geology are particularly useful for their descriptions of geological exposures that are now eroded away or covered over by natural or human processes. These field notes were consulted as part of the process of describing and delineating the geology the county.

Lineback's Field Stops Field locations within Tazewell County described in detail by Lineback and others (Lineback et al., 1979). The detailed descriptions of field exposures and local stratigraphy were used for delineating contacts and identifying units while mapping the geology of the County.

2001 Field Sites Some fieldwork was performed in 2001 by Patrick Johnstone, Dr. Andrew Stumpf, and Scott Medlin of the ISGS to confirm the presence of bedrock outcrops and to field-verify the locations and descriptions of some Quaternary exposures.

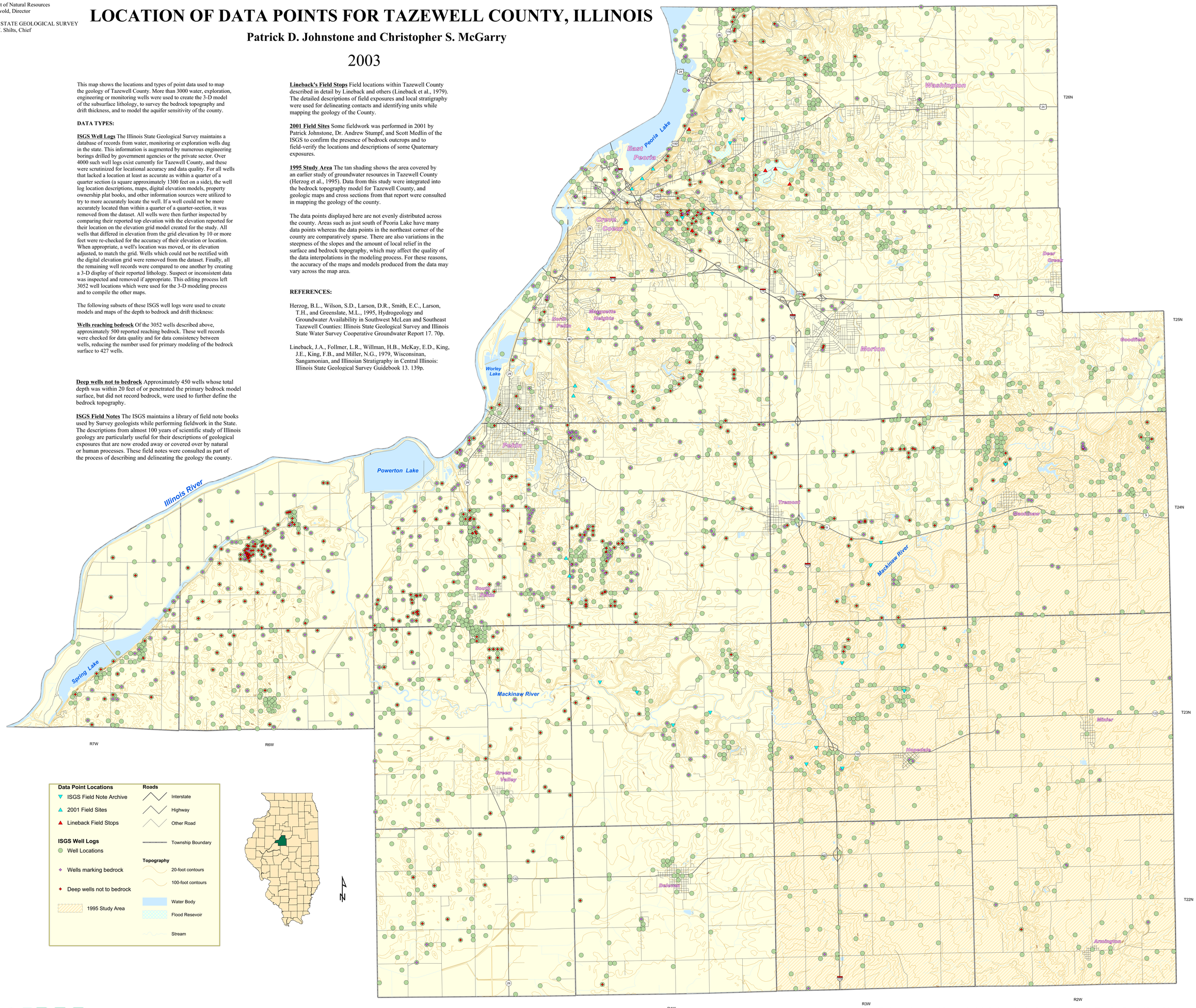
1995 Study Area The tan shading shows the area covered by an earlier study of groundwater resources in Tazewell County (Herzog et al., 1995). Data from this study were integrated into the bedrock topography model for Tazewell County, and geologic maps and cross sections from that report were consulted in mapping the geology of the county.

The data points displayed here are not evenly distributed across the county. Areas such as just south of Peoria Lake have many data points whereas the data points in the northeast corner of the county are comparatively sparse. There are also variations in the steepness of the slopes and the amount of local relief in the surface and bedrock topography, which may affect the quality of the data interpolations in the modeling process. For these reasons, the accuracy of the maps and models produced from the data may vary across the map area.

REFERENCES:

Herzog, B.L., Wilson, S.D., Larson, D.R., Smith, E.C., Larson, T.H., and Greenslate, M.L., 1995, Hydrogeology and Groundwater Availability in Southwest McLean and Southeast Tazewell Counties: Illinois State Geological Survey and Illinois State Water Survey Cooperative Groundwater Report 17. 70p.

Lineback, J.A., Follmer, L.R., Willman, H.B., McKay, E.D., King, J.E., King, F.B., and Miller, N.G., 1979, Wisconsinan, Sangamonian, and Illinoian Stratigraphy in Central Illinois: Illinois State Geological Survey Guidebook 13. 139p.



Data Point Locations
- ISGS Field Note Archive
- 2001 Field Sites
- Lineback Field Stops

ISGS Well Logs
- Well Locations
- Wells marking bedrock
- Deep wells not to bedrock
- 1995 Study Area

Roads
- Interstate
- Highway
- Other Road
- Township Boundary

Topography
- 20-foot contours
- 100-foot contours
- Water Body
- Flood Resevoir
- Stream

N

1:62,500

(1 inch equals approximately 1 mile)

1 0 1 2 3 4 Miles

1 0 1 2 3 4 5 Kilometers

Lambert Conformal Conic Projection

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